

Abstract of the Disclosure

A gate capacitance of a MOS transistor is determined by (a) measuring the gate capacitance and dissipation factor; (b) obtaining a channel resistance and a tunneling resistance; (c) setting an initial capacitance and an error dissipation factor; (d) calculating a direct dissipation factor using the channel resistance, the tunneling resistance, and the initial capacitance; (e) calculating a calculated dissipation factor using the error dissipation factor, the direct dissipation factor, and the measured dissipation factor; (f) calculating a calculated capacitance using the channel resistance, the tunneling resistance, the initial capacitance, the error dissipation factor, and the measured dissipation factor; and (g) detecting the initial capacitance as an accurate gate capacitance of the transistor if it is determined that the calculated capacitance is equal to the measured capacitance and the calculated dissipation factor is equal to the measured dissipation factor, and otherwise repeating steps (c) through (g).